

## REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1, 2, 10, and 15 are presently active in this case, Claims 1 and 10 having been amended and Claims 3 and 23 having been canceled by way of the present Amendment.

Claims 1-3, 10, 15, and 23 were rejected under 35 U.S.C. 103(a) as being unpatentable over Furukawa (JP 60-224,558A), optionally considering Tanaka et al. (U.S. Patent No. 6,132,818) in view of Hongo et al. (U.S. Patent No. 4,190,759). For the reasons discussed below, the Applicants request the withdrawal of the obviousness rejection.

The basic requirements for establishing a *prima facie* case of obviousness as set forth in MPEP 2143 include (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, (2) there must be a reasonable expectation of success, and (3) the reference (or references when combined) must teach or suggest all of the claim limitations. The Applicant submits that a *prima facie* case of obviousness has not been established in the present case because the references, either taken singularly or in combination, do not teach or suggest all of the claim limitations.

Claim 1 of the present application recites a method for marking materials using a marking material and a material to be marked consisting of a light transparent body or a laser transmittive body. The method comprises a first process of placing a surface of the material to be marked and a surface of the marking material together with a desired gap therebetween, vaporizing the marking material by irradiating through the material to be marked with a first laser beam while scanning with the first laser beam, and forming a film vaporized from the marking material onto a predetermined area of the material to be marked. The method further comprises a second process of removing a part of the film formed onto the surface of the material to be marked by irradiating the part of the film with a second laser beam while scanning with the second laser beam, wherein patterns of characters, diagrams or symbols are

formed on the material to be marked and wherein the desired gap is between  $2\mu\text{m}$  and  $200\mu\text{m}$ .

The Furukawa reference forms patterns on the substrate directly by irradiating through the substrate with laser beam. In the present invention, however, patterns are formed through two processes, i.e., the first process for forming a film onto a predetermined area of a material to be marked, and the second process for forming patterns by removing a part of the film. The first process forms a film, not a pattern. The second process removes a part of the film to form a pattern. This process is simplified as compared to other methods, and results in a high quality end product. For example, as a result of the procedural improvements in the present invention, the range of the gap can be enlarged in the present method. Specifically, although the gap in the Furukawa reference cannot exceed  $10\mu\text{m}$ , the gap in the present invention can be in a larger range between  $2\mu\text{m}$  and  $200\mu\text{m}$ , and therefore can be made greater than  $10\mu\text{m}$ . Therefore, in the present invention, since it is not necessary to control the gap strictly, workability increases and the marked patterns improve in quality (especially contrast). The Furukawa reference does not disclose a process of depositing a film, and then a process of removing a part of a film to form patterns, and therefore the present invention can acquire an enhanced effect, as compared to the Furukawa reference, by combining the first process and the second process.

The Hongo et al. reference teaches correcting defects in patterns on substrates, via removal of defects by laser ablation. The present invention does not remove defects, but rather the second process of the present invention removes a part of the film formed onto the surface of the material to be marked to form patterns. This process is different from merely removing defects in a film. The second process in the present invention is used to pattern characters, diagrams or symbols on the material to be marked (note that the first process is merely concerned with forming a film by vaporization and not with patterning of the film). To the contrary, the Hongo et al. reference describes correcting defects in previously prepared patterns.

Additionally, there is no teaching in either the Furukawa reference or the Hongo et al. reference of the use of a first laser beam in the first process and a second laser beam in the second process.

The Applicants, therefore, respectfully submit that the rejection is based on the improper application of hindsight considerations. It is well settled that it is impermissible simply to engage in hindsight reconstruction of the claimed invention, using Applicants' structure as a template and selecting elements from the references to fill in the gaps. *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991). Recognizing, after the fact, that a modification of the prior art would provide an improvement or advantage, without suggestion thereof by the prior art, rather than dictating a conclusion of obviousness, is an indication of improper application of hindsight considerations. Simplicity and hindsight are not proper criteria for resolving obviousness. *In re Warner*, 397 F.2d 1011, 154 USPQ 173 (CCPA 1967).

Accordingly, the Applicants respectfully request the withdrawal of the obviousness rejection of Claim 1.

Claims 2, 10, and 15 are considered allowable for the reasons advanced for Claim 1 from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed, taught, nor suggested by the applied references when those features are considered within the context of Claim 1.

Concerning power of the first and second laser beams in Claim 2, power of the first laser beam is intentionally increased as compared to power of the second laser beam in the present invention. The Hongo et al. reference does not describe the relative relation between power of the first laser beam and power of the second laser beam. Note that the first laser beam is used in the first process, and the second laser beam is used in the second process. The Applicants submit that the statement regarding what "one would expect" (see page 3, line 20 of the Official Action) is mere speculation based upon improper hindsight considerations.

With respect to Claim 10, the film thickness is 0.1 $\mu$ m to 2 $\mu$ m, which is greater than 0.07 $\mu$ m. In addition, it is noted that the film thickness does not mean the thickness of the patterns finally formed onto the material to be marked.

Consequently, in view of the above discussion, it is respectfully submitted that the present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Finally, the attention of the Patent Office is directed to the change of address of Applicants' representative, effective January 6, 2003:

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Please direct all future communications to this new address.

Respectfully Submitted,

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IN THE CLAIMS

1. (Five Times Amended) A method for marking materials using a marking material and a material to be marked consisting of a light transparent body or a laser transmittive body, comprising:

a first process of placing a surface of said material to be marked and a surface of said marking material together with a desired gap therebetween, vaporizing said marking material by irradiating through said material to be marked with a first laser beam while scanning with the first laser beam, and [depositing] forming a [deposit] film vaporized from said marking material onto a predetermined [portion] area of said material to be marked; and

a second process of removing a part of said [deposit deposited] film formed onto the surface of said material to be marked by irradiating the part of the [deposit] film with a second laser beam while scanning with the second laser beam;

wherein patterns of characters, diagrams or symbols are formed on said material to be marked; and

wherein said desired gap is between 2 $\mu$ m and 200 $\mu$ m.

3. (Cancel)

10. (Four Times Amended) A method for marking materials according to claim 1, wherein the deposited marking material is a thin film formed on the surface of the material to be marked having a thickness [of 10  $\mu$ m or less] from 0.1 $\mu$ m to 2 $\mu$ m.

23. (Cancel)